

INFORMATION PAPER

CECW-OD

8 April 1998

SUBJECT: **Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS)**
System

1. Purpose. To provide information on the use and application of SHOALS for USACE hydrographic survey needs

2. Facts.

a. The USACE owns and a contractor (John E. Chance and Associates) operates this highly accurate and efficient helicopter (or fixed-wing aircraft) mounted hydrographic survey system which uses laser technology.

b. The system has been fully-operational since March 1994 and since that time:, 200+ projects have been surveyed
350 million elevations have been mapped or charted
2,500 square kilometers have been surveyed, and areas of Atlantic and Pacific Coasts, Great Lakes, Gulf of Mexico, and Caribbean Sea have been surveyed during 28 months of the past 36 months that the system has been operating in the field

c. SHOALS is unique from other conventional or single- or multi-beam survey systems in that it uses swath technology to effect highly accurate surveys of in-water and adjacent upland areas. Surveys have been made of near-shore areas, navigation structures (channels, jetties, breakwaters, groins) and upland (beach or dredged material disposal) areas.

d. The advantages of using SHOALS over other hydrographic survey techniques include the speed, the density of data and accuracy of survey outputs at lower costs. However, full advantage can not be realized unless Planning, Engineering, and Operations survey needs are coordinated across district and division boundaries to develop a regional SHOALS survey plan. This requires a culture change in thinking about the accomplishment and use of hydrographic surveys and data. SHOALS surveys of the same projects in consecutive years will serve as valuable management tools for assessing shoaling patterns, scour impacts to structures, or erosion rates of beaches..

e. The SHOALS system is managed and marketed by the Airborne Lidar Bathymetry Technical Center of Expertise in Mobile District (under Wynne Fuller, Chief, Operations Division).

f. Water turbidity is the limiting factor to SHOALS use.

g. Mobile District is seeking opportunities to help USACE districts and divisions achieve their hydrographic survey needs during this time of reduced funding and human resources.

Michael F. Kidby/202-761-8835
Charles M. Hess, Chief,
Operations, Construction
and Readiness Division